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PROVISIONAL APPLICATION FOR PATENT COVER SHEET


This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

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INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Vincent		Leesberg		North Canton, Ohio	
Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
STORAGE CONTAINER WITH LOCKING DEVICE FOR RECORDED MEDIA					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number: <div style="border: 1px solid black; width: 200px; height: 30px; display: inline-block;"></div>					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name		Don W. Bulson, Esq.			
Address		Renner, Otto, Boisselle & Sklar, LLP			
Address		1621 Euclid Avenue, Nineteenth Floor			
City		Cleveland	State	Ohio	Zip 44115
Country		US	Telephone (216) 621-1113	Fax	(216) 621-6165
ENCLOSED APPLICATION PARTS (check all that apply)					
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<input type="checkbox"/> Application Date Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE Amount (\$)	
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees.				<div style="border: 1px solid black; width: 100px; height: 60px; text-align: center; vertical-align: middle;">\$160.00</div>	
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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

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60/528355

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Respectfully submitted,
SIGNATURE 
TYPED or PRINTED NAME Don W. Bulson, Esq.
TELEPHONE (216) 621-1113

Date December 10, 2003
REGISTRATION NO. 28,192
(if appropriate)
Docket Number: NEXPP0204US

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

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STORAGE CONTAINER WITH LOCKING DEVICE FOR RECORDED MEDIA

Background of the Invention

1. Technical Field

5 The present invention generally relates to media storage containers and, more particularly, to a media storage container including a locking device that holds an item of recorded media to the container until the locking device is unlocked. Specifically, the present invention relates to a media storage container having a hub that receives a disk of recorded media, such as a
10 compact disk (CD) or digital video disk (DVD), and a locking device that cooperates with the hub to prevent the disk from being removed from the hub. The storage container and locking device are particularly useful for holding an item of recorded media that is repeatedly rented.

15 2. Background Information

 Renting items of recorded media including movies and video games has become immensely popular in recent times given the ever increasing number of items available for home viewing and use as well as the decrease in price of the machines that play the media. Typical rental stores display the items available
20 for rental in storage containers that protect the items from dust, ultraviolet light, and damage from impact if accidentally dropped. Stores protect themselves against theft by placing one or more EAS tags on the container for the item of recorded media. An EAS tag is adapted to activate an alarm when passed through a sensing device that may be disposed around the exit of the store.

25 The EAS tag usually are not affixed to the item of recorded media. Knowing this, shoplifters have been known to open the storage containers in order to remove the item of recorded media from the storage container. Special storage containers have been developed that can be locked to prevent opening of the storage containers except by store clerks using special keys.
30 Notwithstanding, determined shoplifters have found ways to open the locked storage containers, that often involves destruction of the storage container

and/or container lock. To prevent this, the storage containers would need to be made of stronger materials, but this usually is cost prohibitive.

As an alternative, a locking device can be employed to hold the item of recorded media to the storage container in such a manner that when the locking device is in place, the item can only be removed by destroying the item. This is called "benefit denial" and this can function as an effective deterrent. U.S. Patent No. 6,516,945 discloses a storage container for a recorded media disk wherein the disk is held on a hub within the container. A device cooperates with the hub to prevent the disk from being removed from the hub until an end user of the disk destroys the device and discards it when first removing the disk from the hub. This storage container and locking device are particularly well-suited for the retail sale of recorded media disks. However, this manner of locking the disk against removal is not well suited to the rental of recorded media disks. A store clerks or the end user would have to destroy the locking device each time a disk is rented. Then, when the disk is returned, a new locking device would have to be used to lock the disk to the storage container.

Another known storage container secures the disk by locking it through the center hole of the disk. A locking tack has a head and a projecting pin that extends through a hole in the lid of the container. The locking tack is locked by a ball clutch device included in a hub that is attached to bottom wall of the base. Such arrangement prevents opening of the storage container since the locking tack extends through the lid. While this may be advantageous, the enlarged head of the locking tack covers a portion of the outer surface of the lid which oftentimes is provided with graphics, and thus a portion of the graphics will be obscured by the head of the locking tack. Generally, such arrangement is not very attractive or aesthetically pleasing.

Summary of the Invention

According to one aspect of the invention, there is provided a locking device for a disk-retaining hub configured to retain a disk-shaped item of recorded media. The locking device comprises a female part, and a male part configured to lock to the female part. The male part has a head and a post

extending from the head, and the head is configured to prevent a disk from being removed from the disk-retaining hub when the head is locked to the base. The female part has a quick connect feature for quick connection to a bottom wall of a storage container base when inserted into a receptacle in the bottom
5 wall from outside the container base.

According to another aspect of the invention, there is provided a storage container with a locking device for a disk, wherein the storage container includes a base, a lid cooperating with the base to form a chamber for the disk when the lid is closed on the base, and a hub on the base configured to hold the disk on
10 the hub in a manner that allows removal of the disk from the hub and replacement of the disk on the hub. The locking device include a female part, and a male part configured to lock to the female part, the male part having a head and a post extending from the head. The head is configured to prevent a disk from being removed from the disk-retaining hub when the head is locked to
15 the base, and the head is dimensioned to fit within the chamber when the lid is closed on the base. In a preferred embodiment, the female part is quick-connected in a receptacle in the base.

According to a further aspect of the invention, there is provided a method for renting a recorded media disk. The method comprises the steps of selecting,
20 at a retail establishment, a storage container having a disk-retaining hub; selecting a locking device including a female part, and a male part configured to lock to the female part, the male part having a head and a post extending from the head; inserting the female part of the locking device into a receptacle in a base of the storage container; placing the recorded media disk on the hub; and
25 inserting the male part into the female part with the recorded media disk being trapped between the head of the male part and the base of the storage container. The method additionally can include the steps of using a key to unlock the male part from the female part to enable removal of the recorded media disk from the storage container.

30 Further features of the present invention will become apparent to those skilled in the art upon reviewing the following specification and attached drawings.

Brief Description of the Drawings

FIG. 1 is a top plan view of a storage container shown in its closed condition.

FIG. 2 is a sectional view taken along line 2-2 of FIG. 1.

5 FIG. 3 is a sectional view taken along line 3-3 of FIG. 1.

FIG. 4 is an enlarged portion of the sectional view of FIG. 3, showing details of the hub portion of the storage container showing a recorded media disk held to the container by a locking device according to the invention.

10 FIG. 5 is a top plan view of the locking device shown separate from storage container.

FIG. 6 is a sectional view of the locking device taken along the line 6-6 of FIG. 5.

FIG. 7 is a sectional view of the locking device taken along the line 7-7 of FIG. 5.

15 FIG. 8 is an enlarged perspective view of the locking device, shown partly broken away in section.

Detailed Description of the Drawings

20 A storage container for a disk-shaped item of recorded media (also herein referred to as a recorded media disk or simply a disk) is indicated generally by the numeral 10 in the accompanying drawings. The container 10 includes a base 12 and a lid 14 that is movable between open and closed positions. In the closed position, lid 14 and base 12 cooperate to form a storage chamber 15 for the recorded media disk 16.

25 In the illustrated embodiment, the base 12 has bottom wall 20 that has a raised central portion 22 forming a center support for the central region of the disk. A hub 24 projects upwardly from the center support 22 and the disk 16 has a center hole that fits over the hub 24 when the disk is placed in the storage container 10. The hub 24 can have any suitable configuration for preventing or
30 at least limiting any shifting movement of the disk perpendicular to the axis of the hub.

In a well known manner and as shown in FIG. 4, the hub 24 is provided with one or more radially outwardly extending protrusions 28 for axially holding the disk 16 on the hub. The protrusions 28 can be resiliently radially inwardly deflected to allow removal of the disk from the hub or placement of the disk on the hub. The protrusions can be diametrically disposed in relation to a substantially cylindrical sidewall of the hub. The number of protrusions can be varied as desired, and the protrusions can be disposed at the end of resilient fingers that are cantilevered from the hub or support surface 24.

The protrusions 28 hold the central region of the disk 16 against the center support 22. The top surface of the center support preferably has a plurality of raised nubs 30 that minimize friction between disk 16 and the center support.

As shown in FIG. 4, the hub 24 has an interior receptacle 36 for receiving a female part 38 of a locking device 40 according to the invention. The locking device 40 also comprises a male part 42 that can be locked to the female part until released by a clerk using an unlocking device. In the illustrated embodiment, the male locking part 42 is a locking tack including a head 46 in the form of a cap and a post 48 extending from a central portion 50 of the cap. The cap also has a skirt portion 52 depending from the central portion 50 for engaging a top surface of the disk thereby to hold the disk against the center support 22 until the locking tack is released from the female part 38 in the below discussed manner. As shown, the skirt 52 has generally a truncated conical shape having a planar bottom surface for providing a wide area of contact with the disk 16. As will be appreciated, the cap is sized to fit within the space between the disk 16 and inner surface 56 of the lid, as illustrated in FIG. 4. Accordingly, the male locking part, as is preferred, does not extend through the upper wall 58 of the lid, and thus any graphics on the outer surface of the lid are not obscured by the head of the locking tack 42.

The female part 38 of the locking device 40 can be any suitable mechanism configured to receive and hold, when locked, the locking pin 48 that can be in the form of an elongate thin pin as illustrated, or any other cooperating configuration. Generally, the female part 38 includes a locking mechanism

housing 60 that has at its axially outer end a stop 62 for engaging against the underside of the bottom wall 20 of the base 12. The female part also is provided with a quick connect device 66 which in the illustrated embodiment includes a retention device 68 cooperating with a retention device 70 on the hub 24 for
5 holding the female part to the base 12. In the illustrated embodiment, the housing 60 has a cylindrical outer surface 72 sized to closely fit in a cylindrical receptacle 36 formed by a tubular sidewall 74 of the hub. The radially inner surface 76 of the hub sidewall and the radially outer surface of the housing are respectively provided with a radial protrusion 70 and recess 68 that cooperate to
10 hold the housing in the hub. If desired, the protrusion can be provided on the hub and the recess on the housing. Preferably, the housing and hub, preferably made of plastic, have sufficient resiliency to allow the housing to be inserted into the hub until the protrusion snaps into the recess. In a preferred embodiment, the recess is an annular groove and the protrusion is an annular bead that fits in
15 the groove to hold the housing in the hub. Although not normally needed, provision can be made to allow the housing to be removed by pushing the housing 60 out of the hub.

As is preferred, the stop 62 will be held against the underside of the bottom wall 20 of the base 12. Preferably, the stop is formed by an annular
20 flange projecting radially outwardly from the bottom of the locking mechanism housing 60. The flange preferably has an axial thickness equal or less than the depth of a recess or well formed in the bottom wall of the housing, so that it does not project below the bottom surface of the surrounding portion of the bottom wall. The recess preferably is formed by reason of the raised central
25 portion 22 of the bottom wall which is upwardly offset from the balance of the bottom wall surrounding the raised central portion, thereby forming the recess or well for the flange.

As above mentioned, the female part 38 of the locking device 40 can be any suitable mechanism configured to receive and hold, when locked, the post
30 48. A preferred mechanism is a ball clutch mechanism 90, such as that shown in FIGS. 5-8. The illustrated ball clutch mechanism is of a conventional construction, including a tapered retaining ring 92, a plunger 94 including plural

apertures 96 for receiving respective detents (such as ball bearings 98), and a return spring 100, all assembled and retained in the housing. The spring forces the plunger towards the tapered retaining ring which has an inner converging surface that cams the ball bearings radially inwardly into binding engagement with the post of the locking tack that extends through coaxial center holes in the housing, retaining ring and plunger. If desired, the post can be provided with an annular groove for receiving the balls to provide an axial interference blocking axial withdrawal of the post from the ball clutch mechanism, or reliance could be had solely on friction or some other grip enhancing surface texturing of the post.

With the foregoing ball clutch mechanism, the locking tack can be released from the ball clutch mechanism by positioning a properly oriented magnet 106 beneath the bottom of the female part. The plunger, which is made of a ferromagnetic material, will be pulled by magnetic force towards the magnet and away from the retaining ring, allowing the ball bearings to move outwardly and free the post of the locking tack for removal. When the ball clutch mechanism is moved away from the magnet, the spring will move the plunger towards the retaining ring, causing the ball bearings to be forced radially inwardly. The other parts of the ball clutch mechanism preferably are made of a non-ferromagnetic material so as not to interfere with the magnetic force acting on the plunger.

Upon reuse, such as after a rental disk has been returned to the rental store, the locking tack can be reinserted into the ball clutch mechanism to lock the locking tack in place. As the post of the locking tack is inserted into the ball clutch mechanism, the leading end of the post will engage the balls and push them axially and in turn the plunger against the biasing force of the spring. After the plunger has moved sufficiently to allow the ball bearings to move radially outwardly to a point allowing the post to pass therebetween, the plunger will once again be forced by the spring toward the retaining ring thereby to lock the post against withdrawal from the ball clutch mechanism.

Although a magnet is used as a key in the illustrated exemplary embodiment, other types of keys can be used with other types of locking mechanisms.

As illustrated in FIGS. 5, 6 and 8, the head of the locking tack preferably is provided with diametrically opposed and parallel finger-gripping surfaces 110 to facilitate gripping of the locking tack head during removal of the locking tack from the female part.

5 The foregoing construction of a storage container and locking device according to the invention provides one or more advantages. As above noted, the outer surface fo the lid is not obscured by any part of the locking device, thereby providing a more aesthetically pleasing appearance. Another advantage is that the storage containers and locking devices can be provided as separate
10 components, and the locking devices used only when needed. Sometimes it may be desirable to use the storage containers without the locking devices. However, when the locking device is needed, the female part can be easily and quickly inserted into the base of the storage container and then used in conjunction with the locking tack. This greatly reduces overall costs since the
15 ball clutch mechanism is a major cost item and need only be installed in the storage container when needed. In fact, the use-on-demand configuration of the female part can be used with the above-discussed prior art locking arrangement where the post extends through a hole in the lid of the storage case, and this application of the female part forms a part of the present invention.

20 Although the invention has been shown and described with respect to a certain preferred embodiment or embodiments, it is obvious that equivalent alterations and modifications will occur to others skilled in the art upon the reading and understanding of this specification and the annexed drawings. In particular regard to the various functions performed by the above described
25 elements (components, assemblies, devices, compositions, etc.), the terms (including a reference to a "means") used to describe such elements are intended to correspond, unless otherwise indicated, to any element which performs the specified function of the described element (i.e., that is functionally equivalent), even though not structurally equivalent to the disklosed structure
30 which performs the function in the herein illustrated exemplary embodiment or embodiments of the invention. In addition, while a particular feature of the invention may have been described above with respect to only one or more of

several illustrated embodiments, such feature may be combined with one or more other features of the other embodiments, as may be desired and advantageous for any given or particular application.

What is claimed is:

1. A locking device for a disk-retaining hub configured to retain a disk-shaped item of recorded media; the locking device comprising:
5 a female part; and
 a male part configured to lock to the female part, the male part having a head and a post extending from the head, the head being configured to prevent a disk from being removed from the disk-retaining hub when the head is locked to the base; and
10 the female part have a quick connect feature for quick connection to a bottom wall of a storage container base when inserted into a receptacle in the bottom wall from outside the container base.
2. A storage container with a locking device for a disk, the storage container
15 including a base, a lid cooperating with the base to form a chamber for the disk when the lid is closed on the base, and a hub on the base configured to hold the disk on the hub in a manner that allows removal of the disk from the hub and replacement of the disk on the hub; and the locking device including a female part, and a male part configured to lock
20 to the female part, the male part having a head and a post extending from the head, the head being configured to prevent a disk from being removed from the disk-retaining hub when the head is locked to the base, and the head be dimensioned to fit within the chamber when the lid is closed on the base.
- 25 3. A storage container and locking device as set forth in claim 2, wherein the female part is quick-connected in a receptacle in the base.
- 30 4. A method for renting a recorded media disk, comprising the steps of:
 selecting at a retail establishment a storage container having a disk-retaining hub;

selecting a locking device including a female part, and a male part configured to lock to the female part, the male part having a head and a post extending from the head;

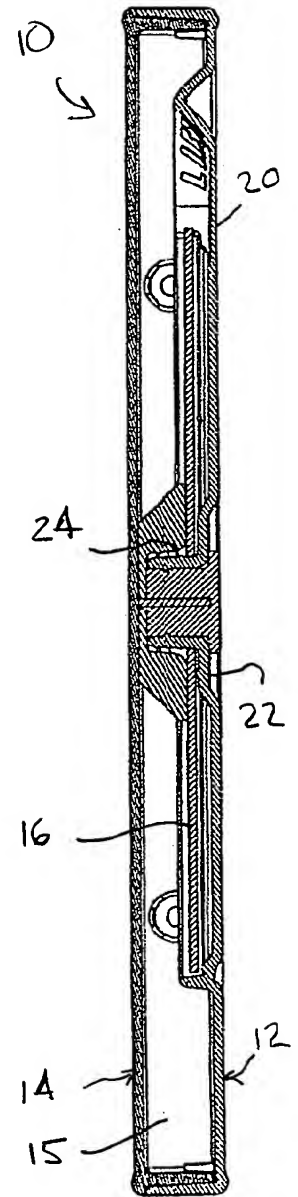
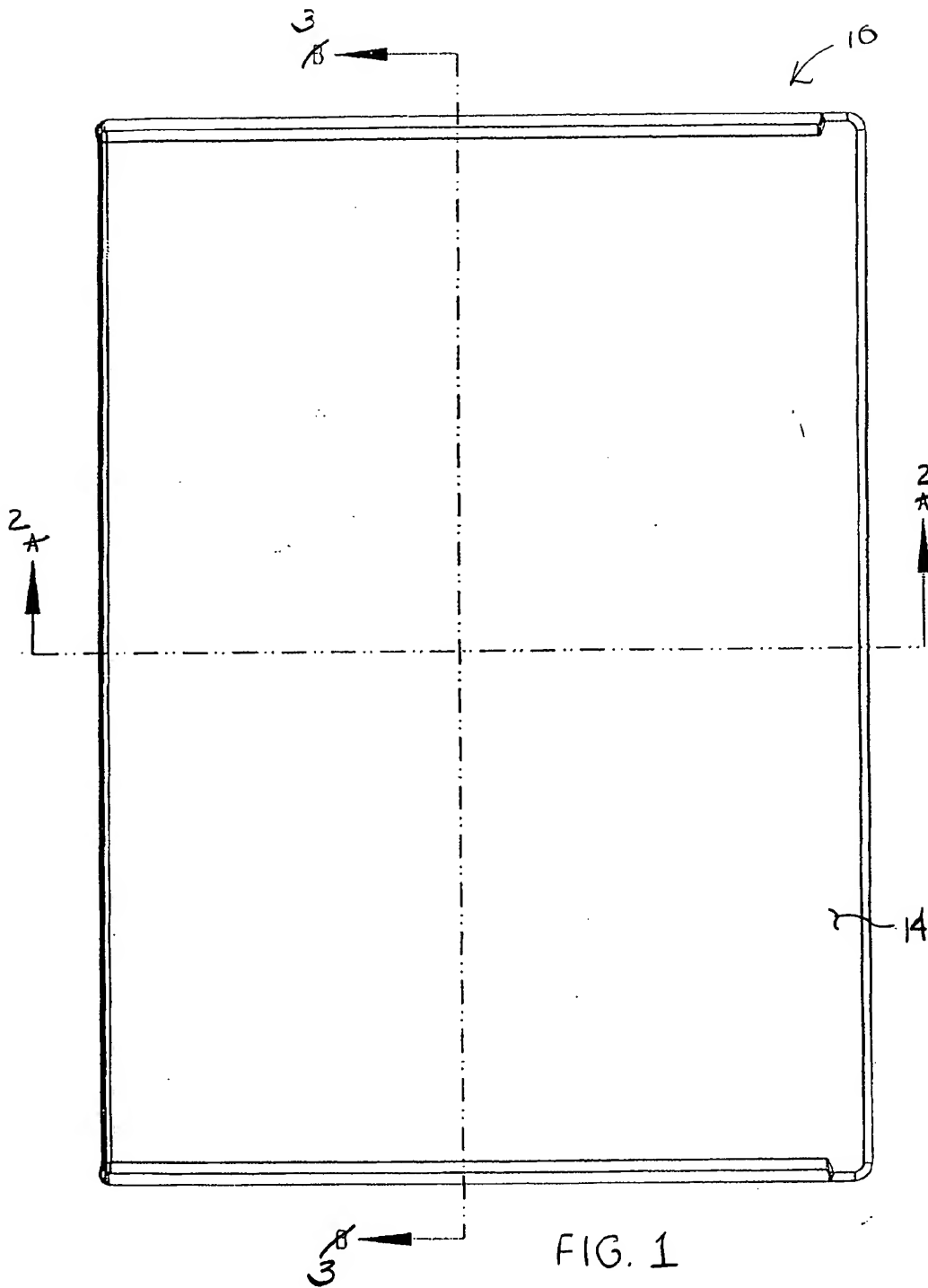
5 inserting the female part of the locking device into a receptacle in a base of the storage container;

placing the recorded media disk on the hub; and

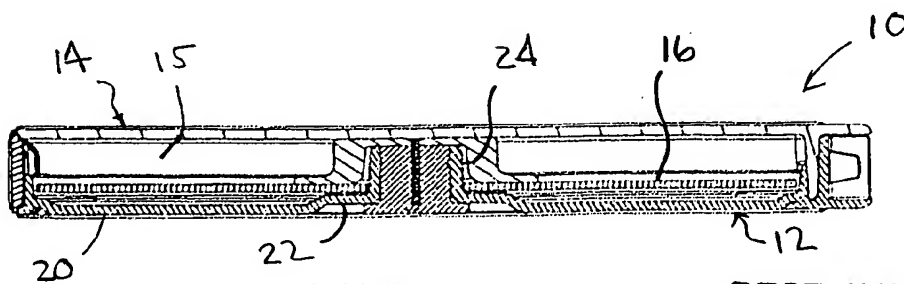
inserting the male part into the female part with the recorded media disk being trapped between the head of the male part and the base of the storage container.

Abstract

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SECTION



SECTION A-A

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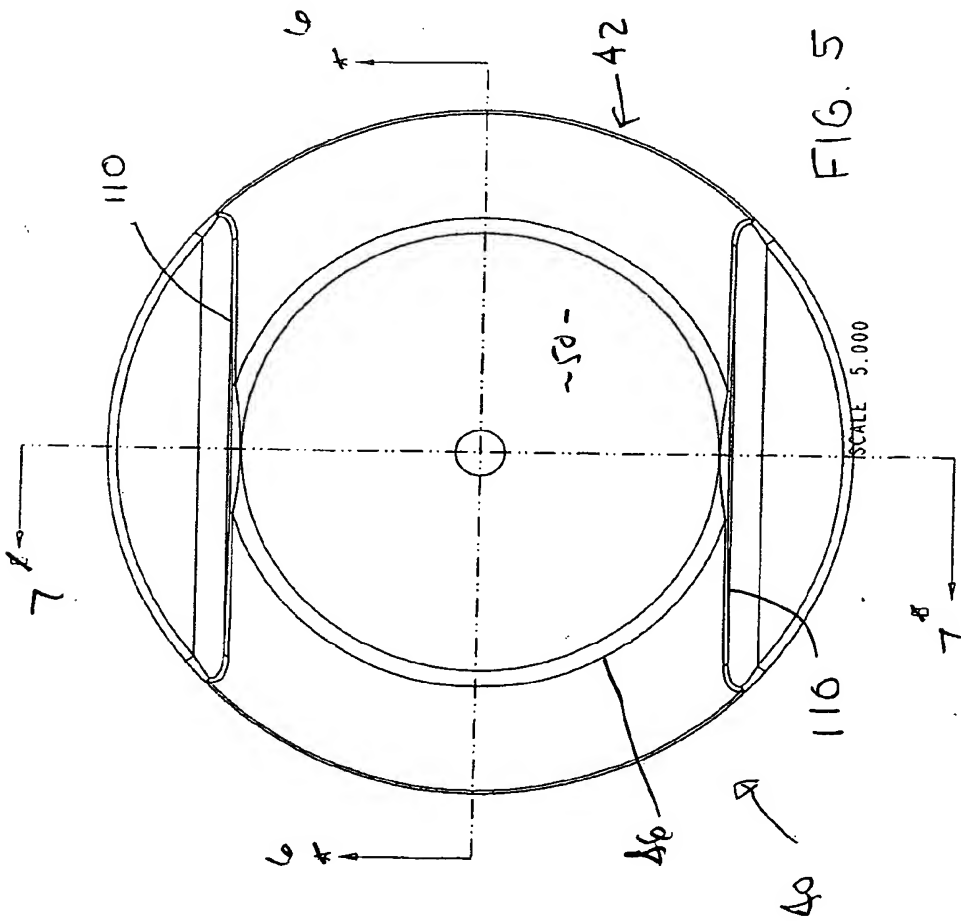
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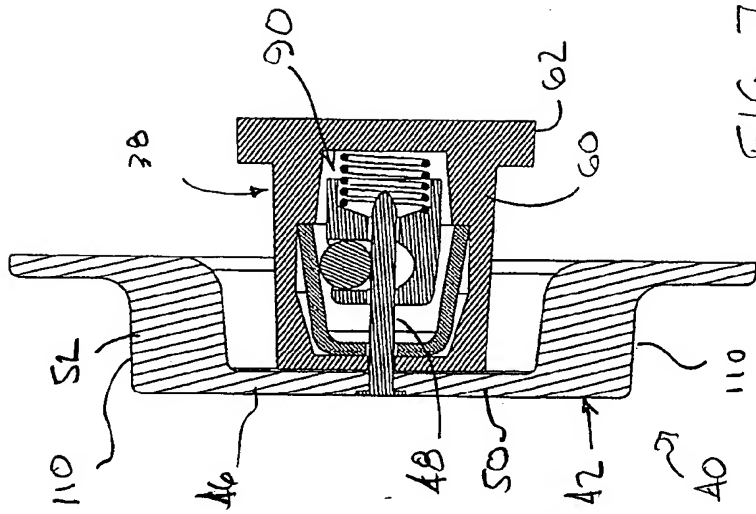


FIG. 7

SECTION B-B

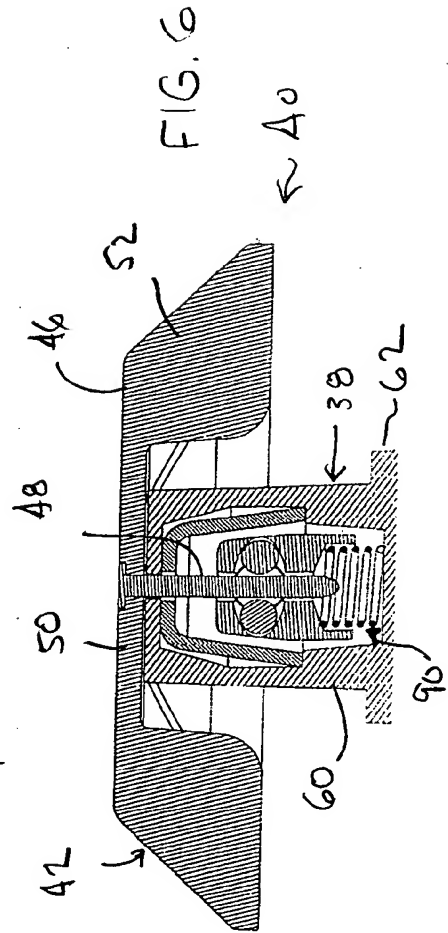


FIG. 6

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4.5

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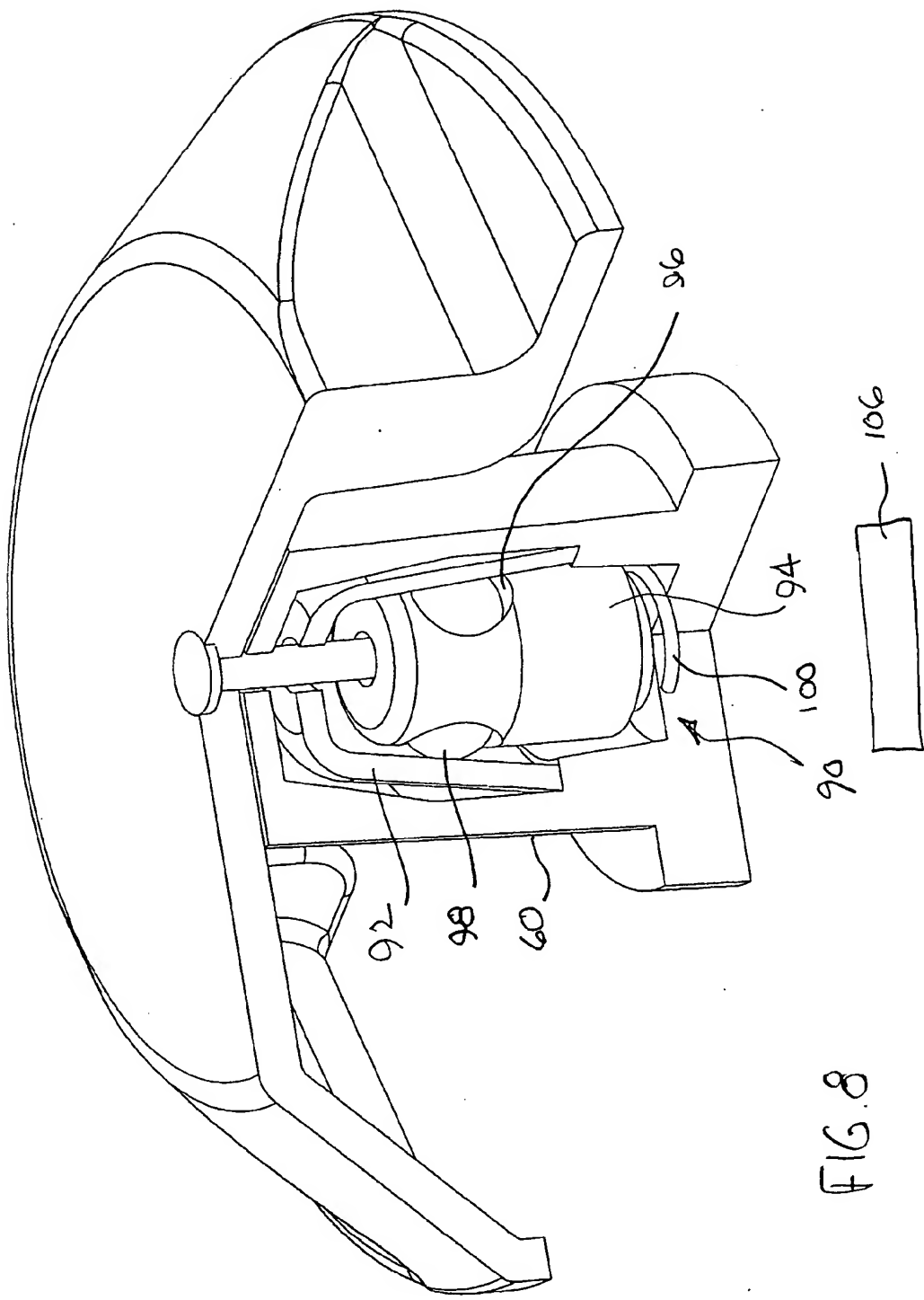


FIG. 8

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